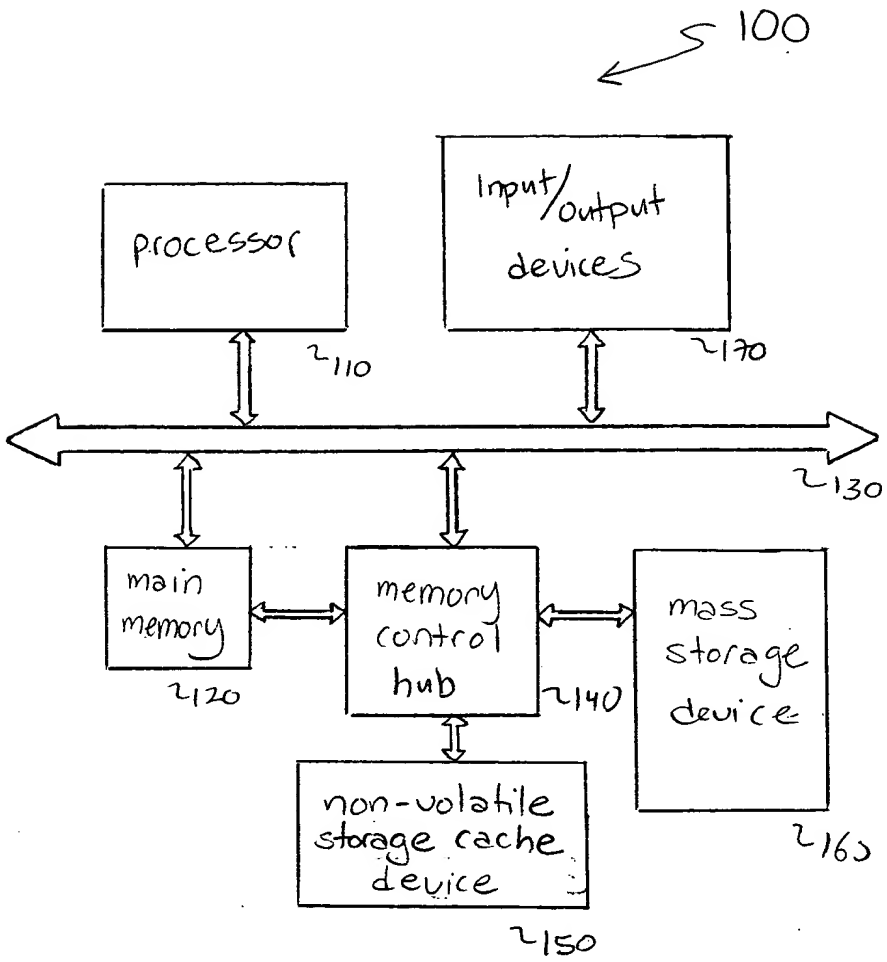
100
processor
Input/output devices
110
170
130
main memory
memory control hub
mass storage device
120
140
160
non-volatile storage cache device
150

Figure 1

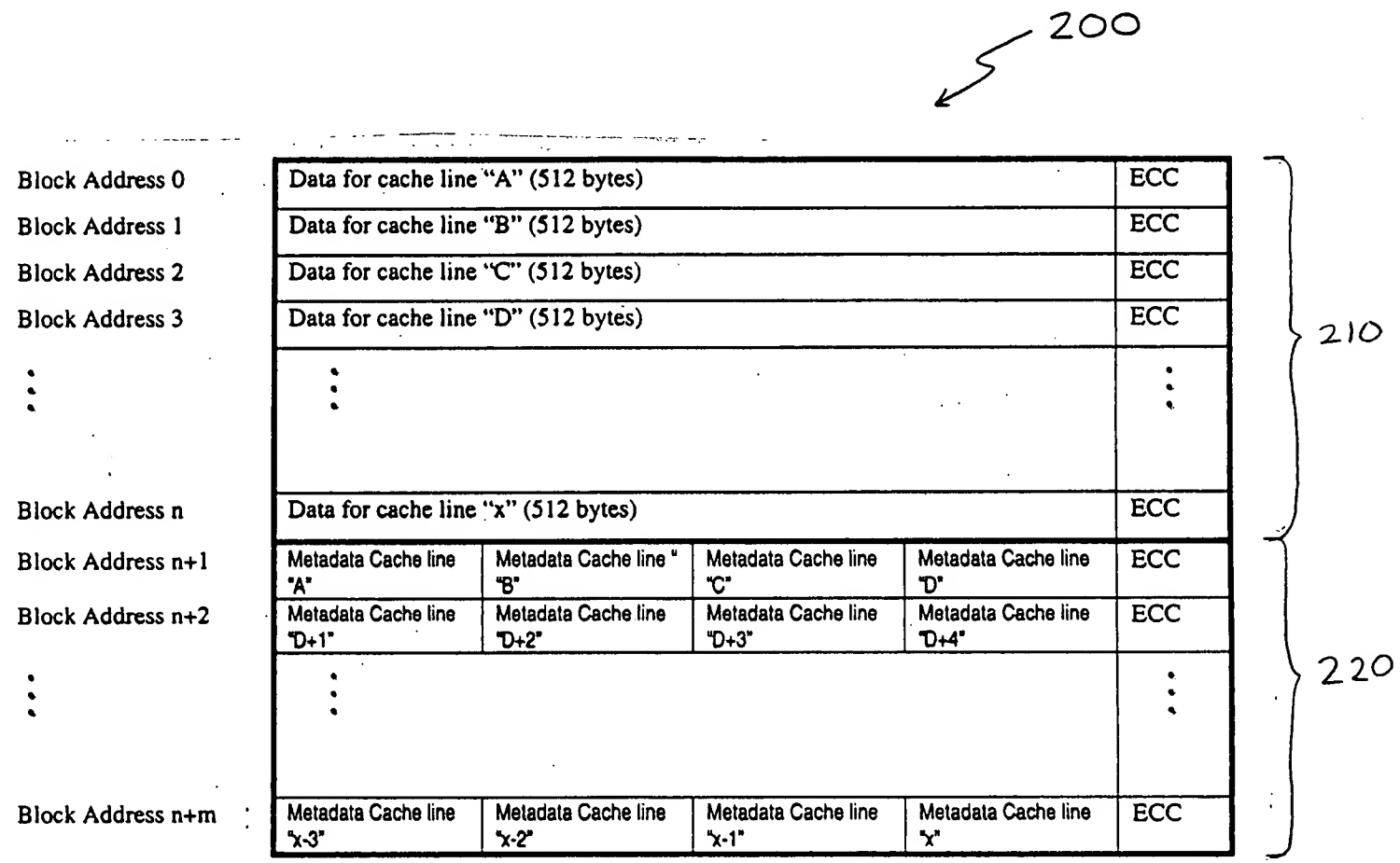
200
Block Address 0
Block Address 1
Block Address 2
Block Address 3
Block Address n
Block Address n+1
Block Address n+2
Block Address n+m
Data for cache line "A" (512 bytes)
Data for cache line "B" (512 bytes)
Data for cache line "C" (512 bytes)
Data for cache line "D" (512 bytes)
Data for cache line "x" (512 bytes)
ECC
Metadata Cache line "A"
Metadata Cache line "B"
Metadata Cache line "C"
Metadata Cache line "D"
Metadata Cache line "D+1"
Metadata Cache line "D+2"
Metadata Cache line "D+3"
Metadata Cache line "D+4"
Metadata Cache line "x-3"
Metadata Cache line "x-2"
Metadata Cache line "x-1"
Metadata Cache line "x"
210
220

Figure 2

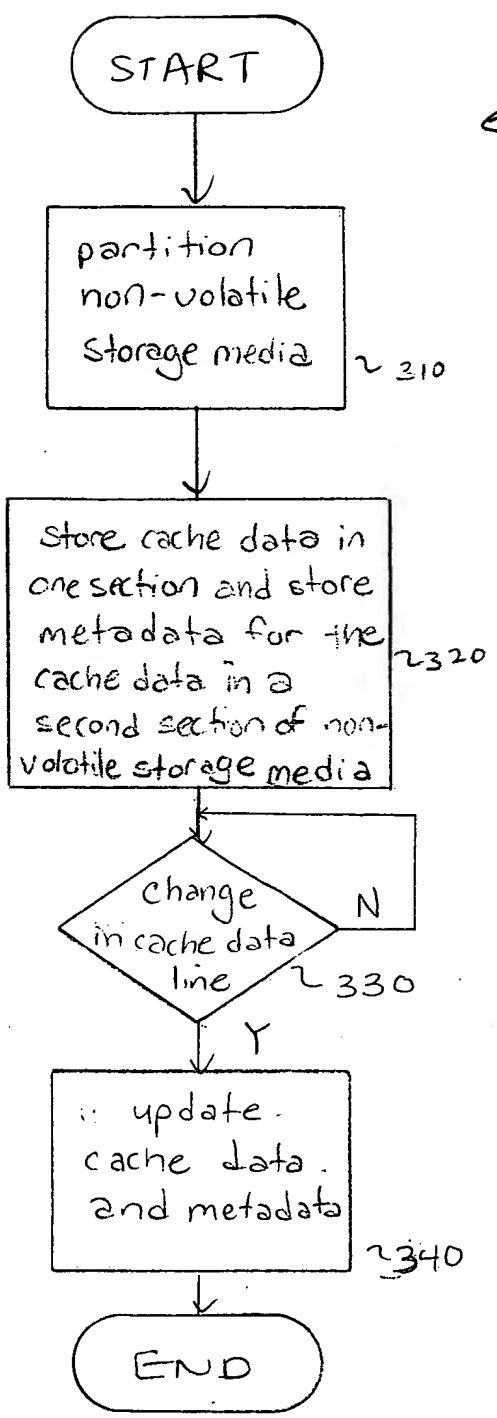
START
300
partition non-volatile storage media
310
Store cache data in one section and store metadata for the cache data in a second section of non-volatile storage media
320
change in cache data line
330
N
Y
update cache data and metadata
340
END

Figure 3